MAYO CLINIC LABORATORIES

# Test Definition: STAT3

Phosphorylated STAT3 at Tyrosine 705 (pSTAT3-Y705), Technical Component Only

## Overview

### Useful For

Subclassification for anaplastic large cell lymphoma

### Reflex Tests

| Test Id | Reporting Name | Available Separately | Always Performed |
|---|---|---|---|
| IHTOA | IHC Additional, Tech Only | No | No |
| IHTOI | IHC Initial, Tech Only | No | No |

### Testing Algorithm

For the initial technical component only immunohistochemical (IHC) stain performed, the appropriate bill-only test ID will be reflexed and charged (IHTOI). For each additional technical component only IHC stain performed, an additional bill-only test ID will be reflexed and charged (IHTOA).

### Method Name

Immunohistochemistry (IHC)

### NY State Available

Yes

## Specimen

### Specimen Type

TECHONLY

### Ordering Guidance

This test includes only technical performance of the stain (no pathologist interpretation is performed). If diagnostic consultation by a pathologist is required order PATHC / Pathology Consultation.

### Shipping Instructions

Attach the green "Attention Pathology" address label (T498) and the pink Immunostain Technical Only label included in the kit to the outside of the transport container.

### Specimen Required

**Specimen Type:** Tissue
**Supplies:** Immunostain Technical Only Envelope (T693)
**Container/Tube:** Immunostain Technical Only Envelope
**Submit:**

Formalin-fixed, paraffin-embedded tissue block
OR
2 Unstained, positively charged glass slides (25- x 75- x 1-mm) per test ordered; sections 4-microns thick

### Digital Image Access

1. Information on accessing digital images of immunohistochemical (IHC) stains and the manual requisition form can be accessed through this website: https://news.mayocliniclabs.com/pathology/digital-imaging/
2. Clients ordering stains using a manual requisition form will not have access to digital images.
3. Clients wishing to access digital images must place the order for IHC stains electronically. Information regarding digital imaging can be accessed through this website: https://news.mayocliniclabs.com/pathology/digital-imaging/#section3

### Reject Due To

| | |
|---|---|
| Wet/frozen tissue<br>Cytology smears<br>Nonformalin fixed tissue<br>Nonparaffin embedded tissue<br>Noncharged slides<br>ProbeOn slides<br>Snowcoat slides | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| TECHONLY | Ambient (preferred) | | |
| | Refrigerated | | |

## Clinical & Interpretive

### Clinical Information

Among all STAT (signal transducers and activators of transcription) proteins, STAT3 plays a central role in development and carcinogenesis through its tight regulation on the gene transcription involved in cell proliferation, differentiation, apoptosis, angiogenesis, immune responses, and metastasis. In anaplastic large cell lymphoma, gene expression profiling studies have identified two overarching molecular subtypes based on the presence (type I) or absence (type II) of JAK-STAT3 pathway activation. Immunohistochemistry for phosphorylated STAT3 expression can be used as a surrogate marker for subtyping in cases of anaplastic large cell lymphoma.

### Interpretation

This test does not include pathologist interpretation, only technical performance of the stain. If interpretation is required, order PATHC / Pathology Consultation for a full diagnostic evaluation or second opinion of the case.

The positive and negative controls are verified as showing appropriate immunoreactivity.

Interpretation of this test should be performed in the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

### Cautions

This test has been validated for nondecalcified paraffin-embedded tissue specimens fixed in 10% neutral-buffered formalin. Recommended fixation time is between 6 and 48 hours. This assay has not been validated on tissues subjected to the decalcification process or use of alternative fixatives for bone and bone marrow specimens or cell blocks.

Age of a cut paraffin section can affect immunoreactivity. Stability thresholds vary widely among published literature and are antigen dependent. Best practice is for paraffin sections to be cut within 6 weeks.

### Clinical Reference

1. Xiong A, Yang Z, Shen Y, Zhou J, Shen Q. Transcription factor STAT3 as a novel molecular target for cancer [prevention. Cancers (Basel). 2014;6(2):926-957
2. Bromberg JF, Wrzeszczynska MH, Devgan G, et al. Stat3 as an oncogene [published correction appears in Cell 1999 Oct 15;99(2):239]. Cell. 1999;98(3):295-303
3. Yu H, Jove R. The STATs of cancer--new molecular targets come of age. Nat Rev Cancer. 2004;4(2):97-105
4. Luchtel R, Dasari S, Oishi N, et al. Molecular profiling reveals immunogenic cues in anaplastic large cell lymphomas with DUSP22 rearrangement. Blood. 2018;132(13):1386-1398
5. Feldman A, Dasari S, Rimsza L, et al. Gene expression profiling reveals two overarching types of anaplastic large cell lymphoma with distinct targetable biology: An L.L.M.P.P. Study. Blood. 2023;142:847-849

## Performance

### Method Description

Immunohistochemistry on sections of paraffin-embedded tissue.(Unpublished Mayo method)

### PDF Report

No

### Day(s) Performed

Monday through Friday

### Report Available

1 to 3 days

# Test Definition: STAT3

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### Specimen Retention Time

Until staining is completed

### Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus

## Fees & Codes

### Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

### Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information

88342-TC, primary
88341-TC, if additional IHC

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| STAT3 | pSTAT3-Y705 IHC, Tech Only | No LOINC Needed |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| 622779 | pSTAT3-Y705 IHC, Tech Only | No LOINC Needed |